IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Confirmation No.: 6955
Evripides DRAKOS	Art Unit: 2618
10/597,161	Examiner: A. Youssef
Int'l. Filing Date: April 16, 2007	Atty. Docket: 1487.0680000
For: **Satellite Monitoring**	

Brief on Appeal Under 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

A Notice of Appeal from the final rejection of claims 1, 2, 4-8 and 10 - 26 was filed on August 7, 2009. Appellant hereby files one copy of this Appeal Brief, together with the required fee set forth in 37 C.F.R. § 41.20(b)(2).

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

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I. Real Party In Interest (37 C.F.R. § 41.37(c)(1)(i))

The real party in interest in this appeal is Inmarsat Global, Ltd., London, United Kingdom.

II. Related Appeals and Interferences (37 C.F.R. § 41.37(c)(1)(ii))

To the best of the knowledge of Appellant, Appellant's legal representative, and Appellant's assignee, there are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on a decision by the Board of Patent Appeals and Interferences ("the Board") in the pending appeal.

III. Status of Claims (37 C.F.R. § 41.37(c)(1)(iii))

This application was originally filed as a U.S. national phase of PCT/GB2004/000226, filed January 16, 2004.

In response to a Final Office Action mailed March 12, 2009, on August 7, 2009, Appellant filed a Reply Under 37 C.F.R. § 1.116, in which no amendments were made, a Petition for a two month extension of time, and a Notice of Appeal. The Examiner mailed an Advisory Action on August 24, 2009.

On October 21, 2009, Appellant submitted a Supplemental Amendment Under 37 C.F.R. §1.116 to correct an obvious error in claim 1. To date the Examiner has not yet acted on that amendment. The requested amendment to claim 1 does not affect the arguments presented on appeal.

Claims 1, 2, 4-8 and 10 - 26 are pending. Claims 1, 2, 4-8 and 10 - 26 are rejected and are being appealed. A copy of the claims on appeal can be found in the attached Appendix as required under 37 C.F.R. § 41.37(c)(1)(viii).

IV. Status of Amendments (37 C.F.R. § 41.37(c)(1)(iv))

On October 21, 2009, Appellant submitted a Supplemental Amendment Under 37 C.F.R. §1.116 to correct an obvious error in claim 1. To date the Examiner has not yet acted on that amendment. The requested amendment to claim 1 does not affect the arguments presented on appeal.

All amendments to the claims previously presented during prosecution have been entered.

V. Summary of Claimed Subject Matter (37 C.F.R. § 41.37(c)(1)(v))

A concise explanation of the invention is provided below for each of the independent claims involved in the appeal. The explanation refers to the specification by page and line number, and to the drawings, if any, by reference characters.

The invention of claims 1, 2, 4-8 and 10 - 22, and 24 - 26 is directed to a method of configuring a multibeam satellite to enable remote monitoring of its transmissions (paragraph 0039; Fig. 2)[1]. The satellite transmits a signal in a first beam to a user terminal for receiving the signal. The satellite is configured to transmit a copy of the signal in a second beam selected to contain a remote monitoring station for monitoring the copy. The copy is transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam (paragraph 0040; Fig. 3).

The invention of claim 23 is directed to a method of monitoring a property of the earth's atmosphere. A multibeam satellite is configured to transmit multiple copies of a predetermined signal in different beams thereof. Each of the copies is received at corresponding spatially diverse monitoring stations. The property is derived from the received copies; the multiple copies of the predetermined signal are transmitted in channels different from those used for user data transmission to user terminals in the respective beams (paragraphs 0038-0041; Fig. 3).

[1] References are to the published application No. 2007/0207728.

VI. Grounds of Rejection to be Reviewed on Appeal (37 C.F.R. § 41.37(c)(1)(vi))

Claims 1-5, 7, 9, 11, 12, 16-21, and 23 were finally rejected under 35 U.S.C. 103(a) as being allegedly obvious over U.S. Published Application No. 2003/0052819 to Jacomb-Hood *et al* in view of U.S. Patent No. 6,078,880 to Kasser *et al.*

Claims 6, 8, 13, 14, 15, and 22 were finally rejected under 35 U.S.C. 103(a) as being allegedly obvious over Jacomb-Hood and Kasser in view of U.S. Patent No. 6,965,755 to Barrett *et al.*

Claim 10 was finally rejected under 35 U.S.C. 103(a) as being allegedly obvious over Jacomb-Hood and Kasser in view of U.S. Patent No. 5,710,971 to Armbruster *et al.*

Claims 24-26 were finally rejected under 35 U.S.C. 103(a) as being allegedly obvious over Jacomb-Hood and Kasser in view of U.S. Published Application No. 2004/0127192 to Ceresoli *et al.*

The issue on appeal is whether either of independent claims 1 or 23, and their respective dependent claims would have been obvious over Jacomb-Hood in view of Kasser, or Jacomb-Hood and Kasser in combination with any of Barrrett, Armbruster or Ceresoli.

VII. Argument (37 C.F.R. § 41.37(c)(1)(vii))

A. Common Ground of Rejection

The common ground of rejection to be reviewed on appeal is whether claims 1, 2, 4-8 and 10 - 22, and 24 - 26 would have been obvious over U.S. Published Application No. 2003/0052819 to Jacomb-Hood *et al* in view of U.S. Patent No. 6,078,880 to Kasser *et al.*

Each of the several rejections is grounded on the combinability of Jacomb-Hood and Kasser to arrive at Appellant's invention. For reasons set forth below, Appellant believes that the Examiner's construction of the references is incorrect. As a result, even if the references could be combined as proposed by the Examiner, the claimed invention would not be met by such hypothetical combination(s). The rejections under 35 U.S.C. § 103(a) must be reversed.

B. Jacomb-Hood does not teach certain features of claims 1 and 23.

In the Final Rejection, the Examiner acknowledged that Jacomb-Hood does not teach the following features of claim 1:

> (a) "configuring the satellite to transmit a copy of the signal in a second beam selected to contain a remote monitoring station for monitoring the copy" and
>
> (b) "wherein the copy is transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam."

Specifically, the Examiner stated:

> With respect to claim 1, Jacomb-Hood et al. disclose a method of configuring a multi-beam (#100A) satellite to enable remote monitoring ("remote user") of its transmissions (by teaching in paragraph 37, that remote receive stations, to a means for dividing each signal into a plurality of fractional signals), wherein the satellite transmits a signal in a first beam (#114A) to a user terminal for receiving the signal (by teaching in paragraph 46, see figure 1B, that Interference signal 128B is received through the sidelobe of beam 114B), ***except for the method comprising configuring the satellite to transmit a copy of the signal in a second beam selected to contain a***

> ***remote monitoring station for monitoring the copy wherein the copy is transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam.***

Final Rejection, pages 2-3 (emphasis added).

The Examiner thereafter contended that

> Kasser teach the method comprising configuring the satellite to transmit a copy of the signal ("delayed duplicate signal") in a second beam (V2) selected to contain a remote monitoring station for monitoring the copy wherein the copy (by teaching in column 2, lines 4046, that reads on duplicate signal) is transmitted in the second beam (V2) in a channel different from that used for user data transmission (column 3, lines 63-66, that received interfering signals having undergone different channel distortions)to user terminals in the second beam (V2) (by teaching in column 4, lines 15-20).

Final Rejection, page 3.

Appellant respectfully disagrees with the Examiner's contention for the reason that Kasser does not teach or suggest either of features (a) or (b) set forth above.

C. Kasser does not teach the features alleged by the Examiner

Kasser does not teach a second satellite beam containing a remote monitoring station for monitoring a copy of a satellite signal. Unlike Appellant's claimed invention, the technique described by Kasser is not designed for satellite monitoring. Rather, Kasser is concerned with interference cancellation. Kasser purports to achieve interference cancellation by (i) receiving a wanted signal together with an interfering signal via a first path V_1, (ii) receiving a delayed duplication of the interfering signal via a second path V_2, and (iii) subtracting the delayed duplication of the interfering signal from the signal received via the first path V_1 to obtain the wanted signal free of interfering signal.

The Examiner argues that Kasser teaches "a second beam (V2) [containing] a remote monitoring station for monitoring [a] copy" of the transmitted signal. While the second path

V_2 may be a satellite beam, it cannot be considered as a ***second*** satellite beam because Kasser ***does not describe a first*** satellite beam. The first path V1 in which a wanted signal and an interfering signal are transmitted is not a satellite beam. It is a transmission path between a base station and a terrestrial receiving antenna TA (see Fig. 2(b)). The beams are clearly described by Kasser as follows:

> [T]he ***first path V_1 comprises***, for example, advantageously, connected in cascade: ***the terrestrial receiving antenna*** denoted TA, a baseband demodulator of conventional type, an equalizing device making it possible to carry out an equalization processing of conventional type, that is to say amplitude and frequency equalization. The equalizing circuit is followed by an inventor circuit with gain -1.
>
> Likewise, the ***second path comprises***, connected in cascade, ***the SA satellite receiving antenna***, a baseband satellite channel demodulator of conventional type, this demodulator being followed by an equalizing device also making it possible to carry out an equalization processing of the demodulated signals both in terms of amplitude and frequency.
>
> '800 patent, Col. 3, lines 33-47 (emphasis added).

Kasser's two beams comprise a terrestrial beam (V_1) and a satellite beam (V_2). Kasser does not teach or suggest transmitting ***a signal in a first satellite beam*** and transmitting ***a copy of the signal in a second satellite beam***. Thus, even if it were possible to combine the teaching of Kasser with that of Jamcomb-Hood, one would still not achieve the features of Appellant's invention, namely transmitting ***a signal in a first satellite beam*** and transmitting ***a copy of the signal in a second satellite beam***.

Kasser does not teach transmission of a copy of a (satellite) signal. The "interfering signal" (transmitted together with the wanted signal) in Kasser's system is not a satellite signal transmitted by a satellite in a first (satellite) beam. Instead, the interfering signal is a terrestrial RF signal transmitted by a base station S_2.

The "delayed duplication signal" is not necessarily a copy of the interfering signal. It is explicitly stated as being similar to the interfering signal (column 2, lines 43-46). Even if the "delayed duplication signal" is seen as a copy of the interfering signal, it is still clearly different from a copy of a satellite signal transmitted by a satellite in a second beam. Furthermore, the delayed signal in Kasser cannot be a copy of the satellite signal; if it were, the two signals would cancel each other out entirely, thereby defeating the entire purpose of Kasser.

Kasser does not teach transmitting a copy of a satellite signal in a different channel than the first signal. There is nothing in Kasser to suggest that the first path V_1 can be equated with a satellite beam. Even assuming, *arguendo*, one were to consider the first path V_1 as a satellite beam, Kasser still falls short of disclosing transmitting a copy of a satellite signal in a channel different from that used for user data transmission to user terminals in a second beam. Indeed, there is no discussion whatsoever in Kasser about channels used for user data transmission to user terminals in the second path V_2.

Kasser does not teach or suggest a remote monitoring station. Furthermore, the delayed duplication of the interfering signal is only suitable for canceling interference caused by the original interfering signal, but is in no way suitable for monitoring satellite transmission.

D. The Examiner contradicted himself

In his Final Rejection, the Examiner stated:

> With respect to claim 1, Jacomb-Hood et al. disclose a method of configuring a multi-beam (#100A) satellite to enable remote monitoring. . . ***except*** for the method comprising selected to contain a remote monitoring station for monitoring the copy wherein the copy is

> transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam.
>
> Final Office Action, page 3 (emphasis added).

However, in his Advisory Action, the Examiner stated:

> Regarding claims 1 [sic] Applicant agues that Jacomb-Hood doesn't disclose 'Jacomb-Hood does not teach transmission of a copy of a (satellite) signal. [sic]"
>
> Advisory Action, dated August 24, 2009, page 2.

First, Appellant is confused by the Examiner's use of a double negative in the Advisory Action. Second, Appellant did not "argue" that Jacomb-Hood does not disclose "transmission of a copy of a (satellite) signal." As quoted above, the Examiner himself stated that Jacomb-Hood does not teach "the copy [of the satellite signal] is transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam."

Nevertheless, paragraph [0038] of Jacomb-Hood does in fact mention a "copy" of a signal.

> [0038] The relative phase/amplitude settings of the phase/amplitude circuits in the non-reference paths are selected so that the signal received at each remote user has an improved signal to interference power ratio. This improvement in signal to interference power ratio is substantially achieved by reducing the interference power. This reduction in interference power is achieved by creating a composite transmit signal to transmit towards the remote user, which contains a copy of the signal being transmitted towards each of the other nearby remote users. The phase/amplitude settings of the phase/amplitude circuits are selected such that the copy is substantially equal in amplitude and opposite in phase to the interference signal received at the remote user resulting from the sidelobes of antenna beams pointing at other nearby remote users. So the copy and the interference signal cancel each other out at the remote user.

However, as with Kasser, this "copy" is a copy of an interference signal. It is included in transmission to a user in order to cancel interference resulting from the sidelobes

of antenna beams pointing at other nearby remote users. This copy is not transmitted to a second beam containing a remote monitoring station for monitoring transmission performance of a satellite.

E. Kasser does not teach different channels

In his Advisory Action, the Examiner contends that:

> Kasser teach transmitting a copy of a satellite signal (reads on as interfering signal generated by delayed duplication signal, column 2, lines 35-451 [sic]) in a different channel (column 3, lines 64-68, that teach interfering signals having undergone different channel distortions).
>
> Advisory Action, pages 2-3.

The Examiner appears to be interpreting words of the claim out of context. Claim 1 specifies that the copy of the satellite signal is transmitted ... "in a channel different from that used for user data transmissions to user terminals in the second beam". First, Kasser does not teach transmitting ***a copy of a satellite signal***. Second, the cited passage of Kasser does not say anything about the relationship between the channel used for transmitting the interfering signal and the channel used for user data transmission. Furthermore, many factors (temporal and spatial factors for example) can contribute to channel distortions. One cannot infer merely from the words "undergone different channel distortions" as meaning that signals have been transmitted in different channels.

For all of the reasons set forth above, the rejection of claim 1 and its dependent claims must be reversed.

F. Kasser does not teach features of claim 23

In his Final Rejection, the Examiner argued:

> **Regarding Claim 23**, Jacomb-Hood teach a method of monitoring a property of the earth's atmosphere, comprising configuring a multi-beam (#100A) satellite to transmit multiple copies of a predetermined signal in different beams ("two beams", (#114A), (#124)) thereof, receiving each of said copies at corresponding spatially diverse monitoring stations (by teaching in paragraph 37, that remote receive stations, to a means for dividing each signal into a plurality of fractional signals), and ***except for deriving said property from the received copies, wherein said multiple copies of the predetermined signal are transmitted in channels different from those used for user data transmission to user terminals in the respective beams.*** However kasser teach deriving said property from the received copies, wherein said multiple copies of the predetermined signal are transmitted in channels different from those used for user data transmission to user terminals in the respective beams (by teaching in column 2, lines 40-46, that reads on "delayed duplicate signal").Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the apparatus of Jacomb-Hood et al to include copy of the signal as taught by Kasser in order to control signals reducing RF interference exploiting the fact of the simultaneous presence of the same signal, as taught by Kasser in column 1, lines 53-57.
>
> Final Rejection, pages 6-7 (certain emphasis in original; other emphasis added).

Kasser teaches neither deriving a property of the earth's atmosphere from a received copy of a satellite signal; nor transmitting multiple copies of the predetermined signal in channels different from those used for user data transmission. Nowhere in Kasser is there any reference whatsoever to a property of the earth's atmosphere, let alone deriving a property of the earth's atmosphere from a received satellite signal. Further, as discussed above, there is no teaching or suggestion in Kasser that multiple copies of a predetermined signal are transmitted on different channels than those used for user data transmission.

There is no teaching in Kasser that could be used with the disclosure of Jacomb-Hood to overcome the acknowledged defects of the latter reference with respect to the herein claimed invention. Thus the Examiner's rejection of claim 23 must be reversed.

VIII. Conclusion

The subject matter of claims 1, 2, 4-8 and 10 - 26 is patentable over the cited references because the Examiner has failed to make a *prima facie* case of obviousness. Therefore, Appellant respectfully requests that the Board reverse the Examiner's final rejection of these claims under 35 U.S.C. § 103 and remand this application for issue.

Respectfully submitted,

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Claims Appendix

1. (Proposed Amended) A method of configuring a multibeam satellite to enable remote monitoring of its transmissions, wherein the satellite transmits a signal in a first beam to a user terminal for receiving the signal, the method comprising configuring the satellite to transmit a copy of the signal in a second beam ~~selected~~ to ~~contain~~ a remote monitoring station for monitoring the copy, wherein the copy is transmitted in the second beam in a channel different from that used for user data transmission to user terminals in the second beam.

2. The method of claim 1, wherein the copy is transmitted at a substantially lower gain than the signal.

4. The method of claim 1 or 2 wherein the signal and the copy are transmitted at substantially the same frequency.

5. The method of claim 1, wherein the signal is transmitted at a first frequency and the copy is transmitted at a second frequency different from the first frequency.

6. The method of claim 4, wherein the copy of the signal is transmitted in a channel reserved for monitoring by the remote monitoring station.

7. The method of claims 1, wherein a copy of the signal is transmitted in a plurality of different beams, including said second beam.

8. The method of claim 7, wherein the plurality of beams are selected so as each to contain a remote monitoring station for monitoring the copy.

10. The method of claim 1, wherein the satellite is a repeater satellite configurable to convert a feeder link signal, transmitted from a terrestrial gateway to the satellite, to said signal and said copy of the signal.

11. The method of claim 1, wherein the signal contains user data addressed to the user terminal.

12. The method of claim 1, wherein the step of configuring comprises transmitting a configuration command directly or indirectly to the satellite.

13. The method of claim 1, further including transmitting directly or indirectly to the remote monitoring station channel allocation data identifying an allocation of one or more user channels within the signal such that the remote monitoring station monitors the one or more user channels.

14. The method of claim 1, wherein the satellite additionally transmits one or more additional signals in one or more respective additional beams, and wherein the satellite is periodically reconfigured to select different ones of said signal and said one or more additional signals for transmitting a copy thereof in said second beam.

15. The method of claim 14, wherein the satellite is periodically reconfigured so that each of said signal and said one or more additional signals is monitored sequentially.

16. A method of monitoring a transmission of a signal by a multibeam satellite in a first beam, the method comprising receiving a copy of the signal in a second beam of the satellite and monitoring the copy of the signal, wherein the copy is received in the second

beam in a channel different from that used for user data transmission to user terminals in the second beam.

17. The method of claim 16, wherein the copy of the signal is received at a different frequency from that of the signal.

18. The method of claim 17, wherein the copy of the signal is received in a channel reserved for monitoring.

19. The method of claim 16, wherein the copy of the signal is received at the same frequency as that of the signal, and the second beam is non-adjacent to the first beam.

20. The method of claim 16, wherein the gain of the copy is substantially lower than that of the signal.

21. The method of claim 16, wherein the signal contains user data addressed to the user terminal.

22. The method of claims 16, further including receiving channel allocation data identifying an allocation of one or more user channels within the signal, and monitoring the one or more user channels.

23. A method of monitoring a property of the earth's atmosphere, comprising configuring a multibeam satellite to transmit multiple copies of a predetermined signal in different beams thereof, receiving each of said copies at corresponding spatially diverse monitoring stations, and deriving said property from the received copies, wherein said multiple copies of the predetermined signal are transmitted in channels different from those used for user data transmission to user terminals in the respective beams.

24. A computer program arranged to perform the method of claim 1.

25. A computer program product incorporating a computer program according to claim 24.

26. Apparatus arranged to perform the method of claim 1.

Evidence Appendix

To the best of the knowledge of Appellant, Appellant's legal representative, and Appellant's assignee, there has been no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor has any other evidence been entered in the record by the Examiner and relied upon in this Appeal Brief.

Related Proceedings Appendix

To the best of the knowledge of Appellant, Appellant's legal representative, and Appellant's assignee, there are no other appeals or interferences which will directly affect or be directly affected or have a bearing on a decision by the Board of Patent Appeals and Interferences ("the Board") in the pending appeal.

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